Remarks

Reconsideration of this Application is respectfully requested. Claims 1, 2 and 25 are pending in the application, with claim 1 being the sole independent claim.

Based on previously presented arguments and the following remarks, Applicants respectfully request that the Office reconsider the currently outstanding objection and rejection, and that they be withdrawn.

Priority

Applicants agree with the Office that 60/537,282 provides support for NIR664, and that 60/548,240 provides support for BChlE6, as recited in claims 1, 2, and 25. Applicants also agree with the Office that the filing date of claims 1, 2, and 25 is June 9, 2004, the international filing date of the present application.

Rejections under 35 U.S.C. § 103(a)

The rejection of claims 1, 2, and 25 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 6,989,140 B2 ("Tidmarsh") in view of Fukuzumi *et al.*, *J. Phys. Chem. A*, 106:5105-5113 (2002) ("Fukuzumi") is respectfully traversed.

The U.S. Supreme Court has held that "[i]f a person of ordinary skill can implement a predictable variation, §103 likely bars its patentability." *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1740 (2007). The Office has the burden of establishing a *prima facie* case of obviousness. *See In re Bell*, 991 F.2d 781, 783 (Fed. Cir. 1993). The U.S. Supreme Court has affirmed that a *prima facie* case of obviousness is established by considering the factors set out in *Graham v. John Deere*. *See KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1396 (2007). Under *Graham*, the

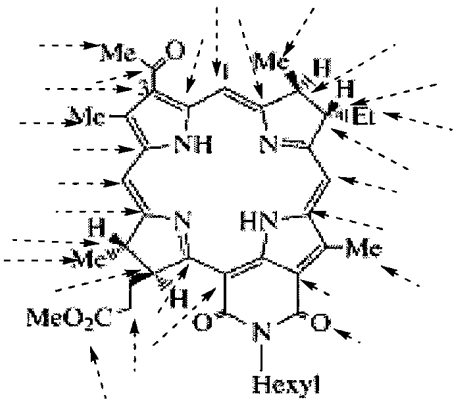
following factors should be considered: "(A) determine the scope and contents of the prior art; (B) ascertain the differences between the prior art and the claims in issue; (C) determine the level of ordinary skill in the pertinent art; and (D) evaluate any evidence of secondary considerations." *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). Applicants have the burden to submit evidence of non-obviousness *only* if the Office has established a *prima facie* case of obviousness. *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984).

It is respectfully asserted that the Office has not established a *prima facie* case of obviousness for at least the following reasons. First, the Office has not established that the claimed invention would have been a predictable variation of the cited references. The Office opines that, "the skilled artisan would have an expectation of obtaining compounds having the same properties as taught by Tidmarsh." (Office Action, page 6.) Applicants respectfully disagree. Tidmarsh describes a large genus of possible linking groups. (*See* Tidmarsh, col. 9, line 58 to col. 11, line 26). This genus of linking groups includes specific functional groups/moieties as well as several different classes of functional groups/moieties, which encompass a virtually infinite number of individual functional groups and analogs thereof. *Id.* Similarly, Tidmarsh describes a large genus of possible fluorophores. *Id.* at col. 5, line 61 to col. 9, line 56. Further, Tidmarsh does not disclose or even suggest use of bacteriochlorin compounds as fluorophores in the conjugates described therein. Like the genus of linking groups, the genus of fluorophores includes specific compounds as well as several different classes of compounds. *See id.*

Fukuzumi does not cure the deficiencies of Tidmarsh. Fukuzumi describes the synthesis, photophysical, and photochemical properties of five bacteriochlorin compounds.[1] (*See* Fukuzumi, pages 5106-5108.) Notably, Fukuzumi does not disclose any of the compounds presently claimed. Further, Fukuzumi does not disclose the use of such bacteriochlorin compounds with 2-deoxy glucose. Indeed, neither Tidmarsh nor Fukuzumi describes or suggests incorporating bacteriochlorin compounds with 2-deoxyglucose conjugates. Therefore, the Office has not established that the claimed invention is merely a predictable variation of the cited references.

Second, the Office has not established a sufficient rationale for combining the teachings of Tidmarsh with Fukuzumi to arrive at the present invention. The Office opines that, "the skilled artisan could arrive at a conjugate having a thiourea group linking the fluorophore and the 2-deoxy glucose molecule, such as would be the case when D is BChlPP and L is NH, by following the suggestion of the prior art." (Office Action, page 6.) Applicants respectfully disagree. The compounds of Fukuzumi are structurally different from the structures recited in claim 1. In addition, excluding replacement of the hexyl group on the imide-nitrogen, there are at least 20 different sites (see Figure 1 below) to which the 2-deoxy glucose molecule could be bonded, via a linking group, to compound 3 of Fukuzumi:

[1] The Office stated that, "it would have been obvious to one of ordinary skill in the art at the time the invention was made to prepare glucose conjugates with bacteriochlorins such as compound 3 taught by Fukuzumi et al." (Office Action, page 5.)



3

Figure 1

Each arrow in Figure 1, above, is a possible linkage site.

Neither Tidmarsh nor Fukuzumi describes or suggests that the preferred bonding site is the nitrogen atom of the imide moiety. Moreover, Fukuzumi does not describe or suggest replacing the hexyl group bonded to the imide-nitrogen with a 2-deoxy glucose-linking group moiety, as described in Tidmarsh. In fact, nothing in Tidmarsh or Fukuzumi suggests replacing the hexyl group with a propyl-thioamide group ($-CH_2CH_2-CH_2-NH-(C=S)-$) and then bonding that propyl-thioamide group to an amino group and a 2-deoxyglucose molecule to arrive at the claimed invention. There is no guidance in either Tidmarsh or Fukuzumi as to how to modify the compounds of the cited references to arrive at the currently claimed compounds.

In short, to arrive at the currently claimed compounds, for example, the BChlPP-conjugate, compound 3 of Fukuzumi would need to be modified and then bonded to a linker and a 2-deoxy glucose molecule in the absence of any guidance as to (1) what linker group should be used, and (2) where the linker group should be attached. For at

least these reasons, the Office has not established a sufficient reason for combining Tidmarsh with Fukuzumi.

Finally, it is respectfully asserted that the Office has clearly used hindsight to advance the obviousness arguments made in the present Office Action. Specifically, the Office has taken Applicants' disclosure as a blueprint to reconstruct the presently claimed invention from isolated pieces of cited art in contravention of the requirement that obviousness be judged from the perspective of a person having ordinary skill in the art *at the time the invention was made.* *See* 35 U.S.C. § 103. However, it is improper to use the specification as a blueprint in establishing a *prima facie* case of obviousness. *See In re Dow Chemical Co.*, 837 F.2d 469, 473 (Fed. Cir. 1988) (holding that "[t]here must be a reason or suggestion in the art for selecting the procedure used, *other than the knowledge learned from the applicant's disclosure.*") (emphasis added). Absent this use of improper hindsight to pick and choose sections of the cited art to compare against the presently claimed invention, the cited references cannot be properly combined in an attempt to make out a *prima facie* case of obviousness.

Based on the foregoing remarks, Applicants respectfully assert that the Office has not established a *prima facie* case of obviousness of the presently claimed invention. Therefore, Applicant respectfully request that this rejection be reconsidered and withdrawn.

Conclusion

The foregoing objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Office reconsider the foregoing objection and rejection, and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Office believes, for any reason, that personal communication will expedite prosecution of this application, the Office is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C.

Keisha Hylton-Rodic, Ph.D.
Attorney for Applicants
Registration No. 59,823

Date: 9/8/2009

1100 New York Avenue, N.W.
Washington, D.C. 20005-3934
(202) 371-2600
1011579_4.DOC